



# Energy Management



# Energy Management

Energy management is the proactive and systematic monitoring, control and optimization of an organization's energy consumption to conserve use and decrease energy costs.



# How was this accomplished?

- Proper scheduling of occupied and unoccupied buildings.
- Proper scheduling of events outside of normal occupied hours.
- Holiday shutdowns for when buildings were not in use.
- Majority of savings realized in Holidays and Summer break.



*Energy Management*

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## Holiday **Shutdown** TEACHER Checklist

Teacher \_\_\_\_\_

Room # \_\_\_\_\_

**\*\*Teachers should ensure that the following items have been completed before leaving for the day on November 20, 2023.**

\_\_\_ **Thermostats on Continuous Unoccupied for the duration of the break.**

\_\_\_ **Computers are UNPLUGGED.**

Unplug ALL electrical devices possible:

\_\_\_ Monitors, printers, speakers, etc.

\_\_\_ Document Cameras

\_\_\_ Televisions

\_\_\_ Radios, CD players, DVD players

\_\_\_ Clocks, Lamps and Candle Warmers

\_\_\_ Microwaves

\_\_\_ Small Refrigerators – personal refrigerators or school owned unplugged

\_\_\_ Office Equipment (laminators, copiers, fax machines, etc.) that will not be in use

\_\_\_ Take home personally owned animals, including fish in classroom aquariums. *Remember that the air conditioning and heating will be reduced during the Break, so leaving animals may endanger their health.*

\_\_\_ Take home ALL personal appliances.

\_\_\_ Leave network equipment in mechanical/electric rooms, alarms and security camera equipment plugged in and on.

\_\_\_ Close blinds or other window coverings.

Please fill out this checklist and attach it to your classroom door.

Teacher Signature \_\_\_\_\_





# Statistics from 2020

Budget \$6,000,000 approx.

- Electric – \$4,200,000
- Water/ Sewer - \$1,600,000
- Gas - \$330,000

Number of Meters – 426 Total

- Electric (123)
- Water/ Sewer (216)
- Gas (87)

Cost Avoidance (Savings) Dollars and Percentage

- Average annual savings: **\$1,649,941**
- Total savings over first 8 years: **\$13,199,532**
- Percentage of savings: **26%**



# What have we done since 2020?

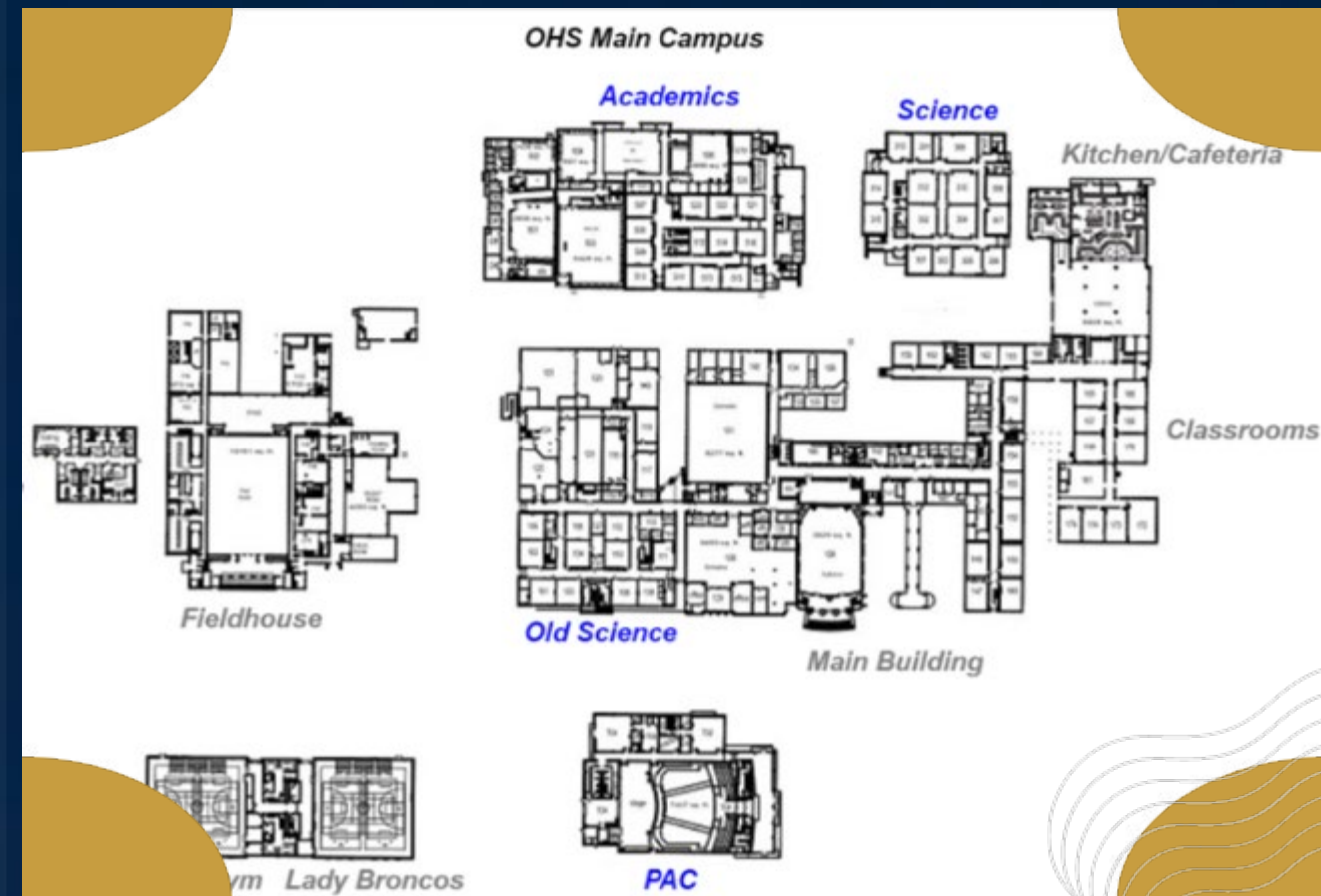
Our focus has  been on Energy  
Management HVAC Controls System.

Network based system that allow us to  
centrally manage HVAC units in the District.

# How do controls help us?



- Real-time information on room temperatures
- Efficient energy shutdowns
- Precise school-day scheduling
- Easier and more precise scheduling for after-school events
- Quicker response times to comfort and A/C related service requests





# Controls Continued:



EMS Home Page **ECISD** Energy Management 11/13/2023 1:13:30 PM Outside Air Temperature 58.82

**Building Home Page** Buice HVAC System Status  
Push Button Status Is "Normal"  
Manual HVAC Shutdown Commands

**Chilled Water System** **Coaches Office**  
**Heating Water System** **FCU Fan Status Page**

**Select Schedules**  
Normal Schedules  
Administration  
Kinderarten  
First Grade  
Second Grade  
Third Grade  
Fourth Grade  
Fifth Grade  
Indoor Gym  
Cafeteria  
Kitchen  
ERU 1 K/1st Grade  
ERU 2 Second Grade  
ERU 3 Third Grade  
ERU 4 4th/5th Grades  
Holiday Calendar

**ERU Information**  
**Exhaust Information**  
**Kitchen Supply Fans**

**Buice, First Floor**

North

Administration

Gym 67.4 °F

Cafe/Commons 71.9 °F

Kitchen 71.8 °F

Kinder

1st Grade

2nd Grade

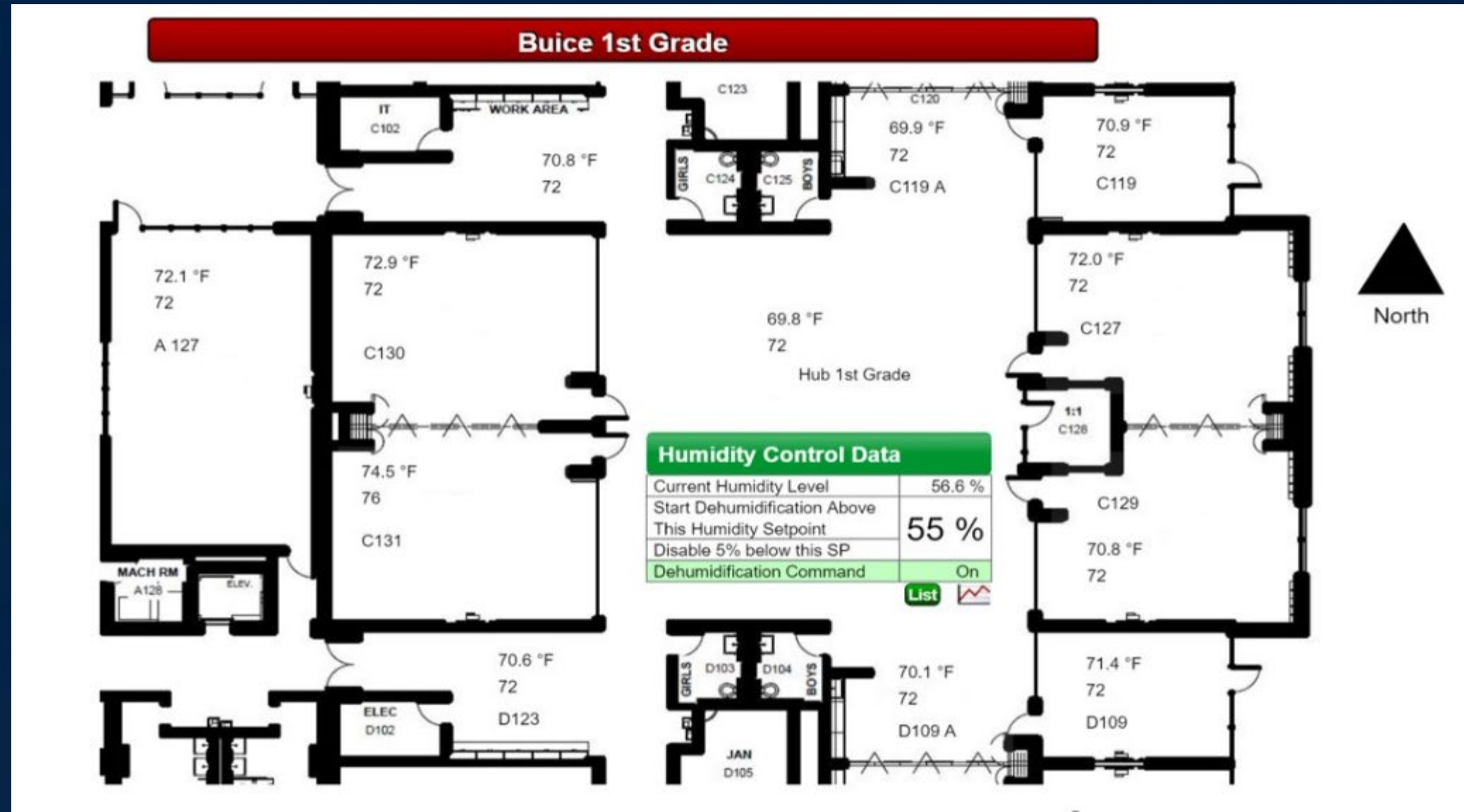
**Buice, Second Floor**

4th Grade

3rd Grade

5th Grade

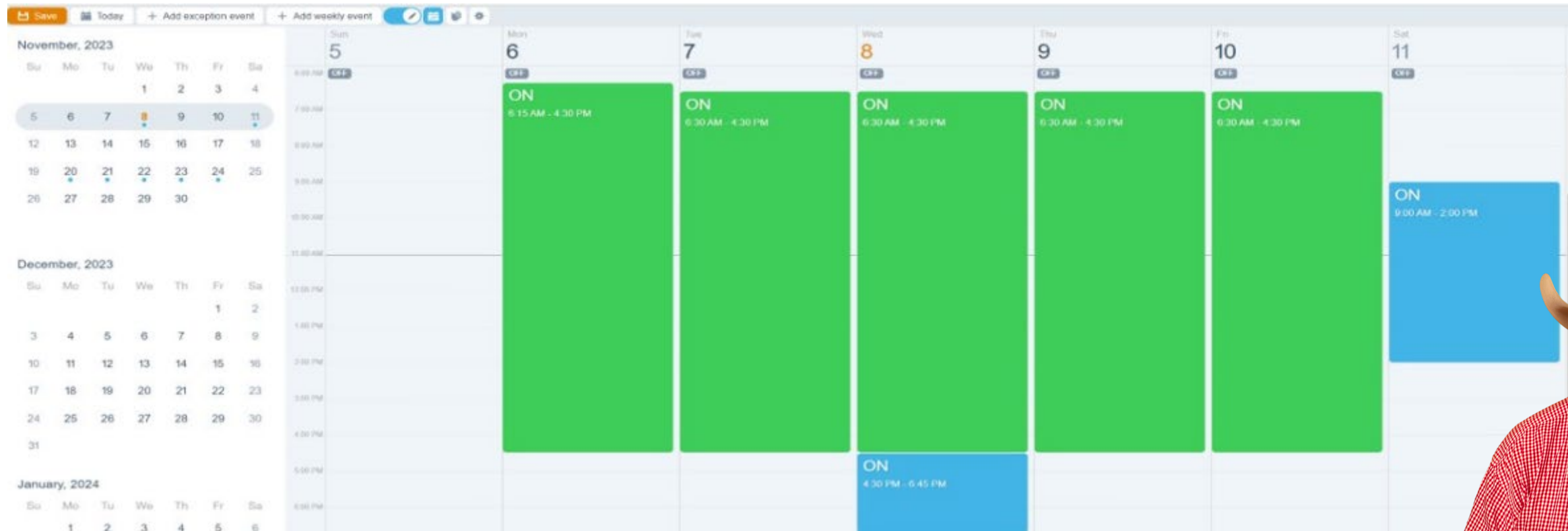
# Controls Continued:



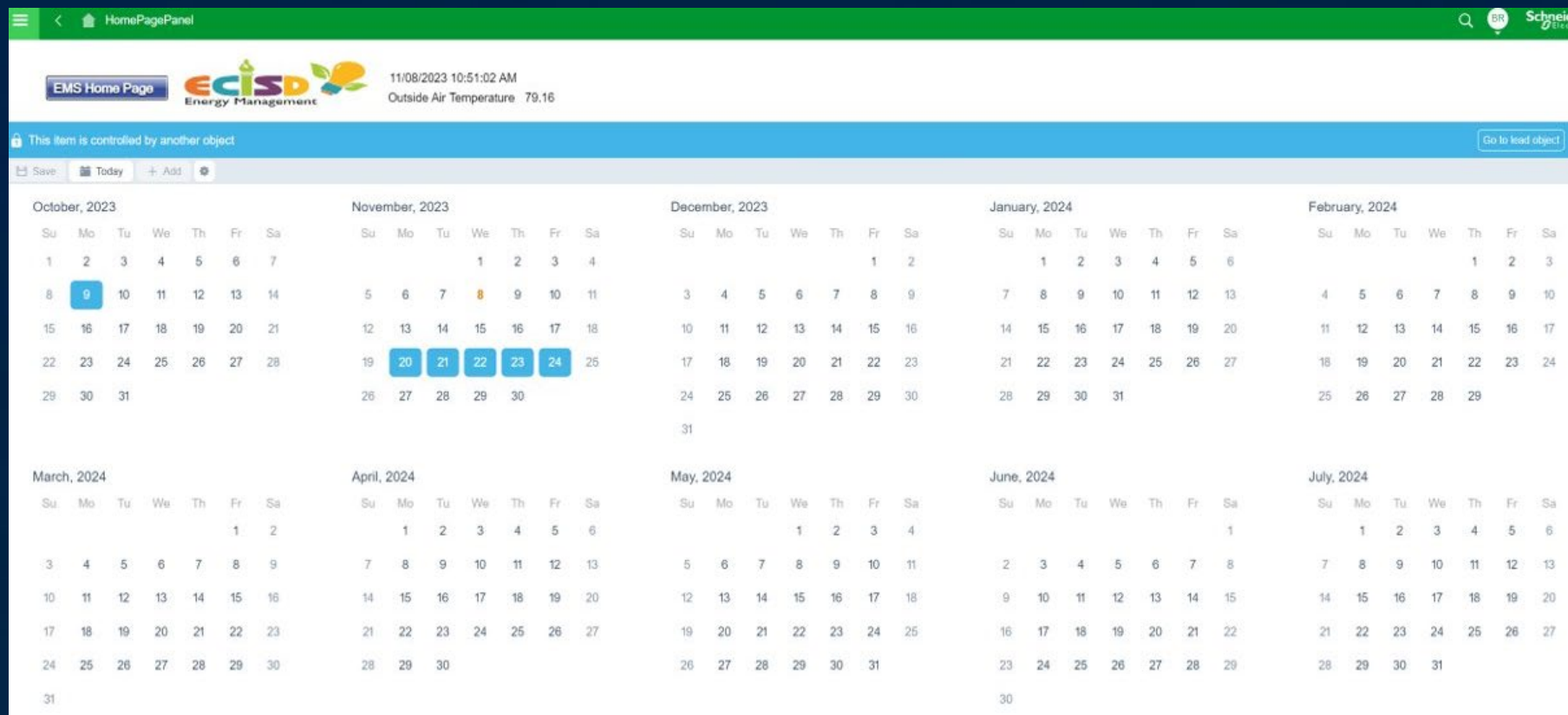


# Scheduling

All graphics and controls on our Energy Management HVAC Control System were created and designed in house by our Energy Manager Kelly Buchannan.




# Scheduling Continued:



Since 2020 Seventeen elementaries have received EMS controls installed. Two more to be added by the end of 2023. One Middle school (Wilson & Young) has been given controls. Upgrades to Bonham, Crockett, and Ector have been completed as well.

# 2020 to Present





Ector County ISD

Ector County Independent School District  
Odessa, Texas

Electrical use (kwh)Avoidance since 2020

Use Avoidance by Cost Center

Billing Period between 202006 and 202308

| Use displayed in: kWh                     | Projected Use | Actual Use  | Use Avoidance | Use Avoidance % |
|---|---------------|-------------|---------------|-----------------|
| Ector County ISD-TX [Ector County ISD-TX] | 133,852,684   | 100,374,813 | 33,477,871    | 25.0%           |
| Total                                     | 133,852,684   | 100,374,813 | 33,477,871    | 25.0%           |



# Cost Avoidance



Ector County ISD

## Report-23 - Energy Conservation Program Results

### Executive Summary (MMBtu)

#### Cumulative Cost Savings

Billing Period between Jul 2020 and Jun 2023

|                 |              |
|-----------------|--------------|
| Expected Cost   | \$18,624,750 |
| Actual Cost     | \$11,659,093 |
| Program Savings | \$6,965,657  |
| Percent Savings | 37.4%        |
| Other Savings   | \$0          |
| Total Savings   | \$6,965,657  |



# Total Cost Avoidance 2012-2023



Ector County ISD

## Report-23 - Energy Conservation Program Results

### Executive Summary (MMBtu)

#### Cumulative Cost Savings

Billing Period between Jul 2012 and Sep 2023

|                 |              |
|-----------------|--------------|
| Expected Cost   | \$54,357,069 |
| Actual Cost     | \$37,261,540 |
| Program Savings | \$17,095,528 |
| Percent Savings | 31.5%        |
| Other Savings   | \$5,880      |
| Total Savings   | \$17,101,409 |

Actual Energy Cost



Program Savings

# What's next?

- Expand focus from Electricity and AC to other areas: Gas, Water, Waste
- Capture data in real time
- Use Data to better understand how we consume energy
- Building by building comparisons
- Complete HVAC control Installation



| YEAR 2020-July |             |
|----------------|-------------|
| TOTAL CCF's    | AMOUNT      |
| 4937.180       | \$14,498.76 |
|                |             |
|                |             |
|                |             |
|                |             |
|                |             |
| YEAR 2021-July |             |
| TOTAL CCF's    | AMOUNT      |
| 6611.910       | \$18,573.28 |
|                |             |
|                |             |
|                |             |
|                |             |
|                |             |
| YEAR 2022-July |             |
| TOTAL CCF's    | AMOUNT      |
| 3556.830       | \$18,034.22 |
|                |             |





# Questions?

